Guidelines For Estimating

White Pea (Navy) Bean Production

Date: January, 2007

This guide is designed to provide you with planning information and a format for calculating the cost of production for a white pea (navy) bean enterprise for both row crop and solid seeded production. Also available, is an Excel spreadsheet that can be downloaded from the Manitoba Agriculture, Food and Rural Initiatives website.

The cash cost inputs associated with growing a crop in Manitoba are substantial. It is extremely important for farm managers to do detailed calculations to select the optimum crop combination that will maximize profits. Detailed planning is also necessary when estimating the amount of operating credit required to finance the inputs.

Producers are encouraged to calculate their own costs of production. Costs and yields differ on each farm due to soil type, climatic conditions and agronomic practices.

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user. If you require assistance with developing your individual budget, please contact your local MAFRI office.

Industry Summary

Dry edible beans is a general term used to describe several bean market classes that include white pea (navy), pinto, black, light red kidney, dark red kidney,cranberry and great northern beans. Dry edible bean production in Manitoba is currently averaging 210,000 acres with a peak of 310,000 acres in 2002. White pea (navy) beans are the most common type accounting for over 60% of the total acres.

Traditionally white pea (navy) beans are grown as a **row crop** in 36 or 30 inch rows. Under this system weeds are managed through a combination of cultivation and herbicides. Harvest system consists of cutting the bean stems below the ground with a knife, putting them in a swath to dry and windrowing the swaths before combining.

New growers are looking at growing beans in row widths from 8 to 21 inches using their existing air seeders. This practice is often referred to as **solid seeded** or narrow row production and accounts for approximately 20% of the edible acreage in Manitoba. Solid seeded bean production relies on herbicides for weed control and requires upright varieties that lend themselves to direct combining or swathing.

White Pea (Navy) Bean - Cost of Production Summary January, 2007

	Row Crop		Solid Seed		
A. Operating Costs	**$/acre**	**$/lb**	**$/acre**	**$/lb**	**Your Cost**
1.01 Seed & Treatment	$43.68	$0.0257	$61.32	$0.0409	_____
1.02 Fertilizer	$26.42	$0.0155	$37.48	$0.0250	_____
1.03 Herbicides	$42.00	$0.0247	$56.00	$0.0373	_____
1.04 Insecticide/Fungicide	$35.00	$0.0206	$35.00	$0.0233	_____
1.05 Crop/Weed Dry Down	$14.00	$0.0082	$14.00	$0.0093	_____
1.06 Fuel Costs	$21.30	$0.0125	$16.78	$0.0112	_____
1.07 Repair & Maintenance	$12.00	$0.0071	$10.40	$0.0069	_____
1.08 Insurance	$20.13	$0.0118	$20.13	$0.0134	_____
1.09 Miscellaneous	$8.00	$0.0047	$8.00	$0.0053	_____
1.10 Land Taxes	$6.95	$0.0041	$5.20	$0.0035	_____
Subtotal Operating	$229.48	$0.1350	$264.31	$0.1762	_____
1.11 Interest on Operating	$7.46	$0.0044	$8.59	$0.0057	_____
Total Operating Costs	**$236.94**	**$0.1394**	**$272.90**	**$0.1819**	_____
B. Fixed Costs					
2. Depreciation					
2.01 Machinery	$30.00	$0.0176	$26.00	$0.0173	_____
2.02 Storage	$3.37	$0.0020	$3.37	$0.0022	_____
3. Investment					
3.01 Land	$35.00	$0.0206	$24.60	$0.0164	_____
3.02 Machinery	$12.00	$0.0071	$10.40	$0.0069	_____
3.03 Storage	$1.65	$0.0010	$1.65	$0.0011	_____
Total Fixed Costs	**$82.01**	**$0.0482**	**$66.01**	**$0.0440**	_____
C. Labour	**$20.70**	**$0.0122**	**$17.25**	**$0.0115**	_____
Total Cost of Production	**$339.65**	**$0.1998**	**$356.16**	**$0.2374**	_____
Estimated Yield per acre	**1,700 lbs**		**1,500 lbs**		

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user.

White Pea (Navy) Bean Cost of Production Worksheet
Row Crop Assumptions

1. This budget provides a guideline to determine the cost of production for a row crop white pea (navy) bean enterprise, based on 400 acres.

2. The investment in machinery and equipment was assumed to be $300 per acre. The machinery complement is similar to a grain enterprise with the addition of a row crop planter, row crop cultivator, row crop sprayer and a bean windrower.

3. A yield of 1700 lbs per acre was assumed.

4. A land value of $875 per acre was assumed.

A. Operating Costs				Your Cost
1.01 Seed & treatment				
		100,000	plants/acre	
	÷	2200	seeds/lb	
	x	1.15	emergence factor	
	=	52	seeding rate lbs/acre	
	x	$0.84	seed cost treated with DCT ($/lb)	
	=	**$43.68**	**$ /acre**	
1.02 Fertilizer				
Nitrogen		35	lbs/acre	
	x	$0.316	cost/lb	
	=	$11.06	$ /acre	
P_2O_5		30	lbs/acre	
	x	$0.280	cost/lb	
	=	$8.40	$ /acre	
K_2O		20	lbs/acre	
	x	$0.218	cost/lb	
	=	$4.36	$ /acre	

Sulfur		10	lbs/acre	_____
	x	$0.260	cost/lb	_____
	=	$2.60	$ /acre	_____
Zinc		0	lbs/acre	_____
	x	$1.50	cost/lb	_____
	=	$0.00	$ /acre	_____
Total	**=**	**26.42**	**$ /acre**	_____

1.03 Herbicide

	$18.00	pre plant incorporated	_____
+	$8.00	post emergent	_____
+	$16.00	post emergent	_____
=	**$42.00**	**$ /acre**	_____

1.04 Insecticide/Fungicide

	1	number of applications	_____
x	$5.00	cost/application	_____
+	$30.00	fungicide	_____
=	**$35.00**	**$ /acre**	_____

1.05 Crop/ Weed Dry Down

$14.00	**$ /acre**	_____

1.06 Fuel Costs

a) Field Fuel Costs

Operation	Times Over	Width feet	Speed mph	Fuel $/ac.	
Cultivate	1	48	5	1.01	_____
Spray	1	90	7	0.38	_____
Cultivate	2	48	5	2.02	_____
Plant	1	24	6	1.68	_____
Cultivate	2	24	6	3.36	_____
Spray	2	90	7	0.77	_____
Puller	1	12	7	2.88	_____
Combine	1	24	3.5	2.88	_____
Total				**$14.98**	_____

b) Truck Fuel Costs from field to storage

	1700	lbs/acre gross yield	
=	340	total tons	
÷	5	tons (truck capacity)	
=	68	trips	
x	5	miles per trip	
=	340	total miles	
÷	2.0	fuel consumption (miles/gal)	
=	773	total litres (4.546 litres/gal)	
÷	400	total acres	
=	1.93	litres/acre	
x	$0.68	fuel cost ($/litre)	
Total =	**$1.32**	**trucking ($ /acre)**	

c) Other fuel costs	**=**	**$5.00**	**$ /acre**
Total fuel costs	**=**	**$21.30**	**$ /acre**

1.07 Repair & Maintenance

	4.0%	percentage rate	
x	$300	investment/acre	
=	**$12.00**	**$ /acre**	

1.08 Insurance

	$15.23	crop insurance	
+	$4.90	hail insurance	
=	**$20.13**	**$ /acre**	

1.09 Miscellaneous

=	**$8.00**	**$ /acre**	

1.10 Land Taxes

=	**$6.95**	**$ /acre**	

1.11 Interest on Operating

	$229.48	Subtotal Operating	
÷	2	average	
x	6.5%	interest rate	
=	**$7.46**	**$ /acre**	

B. Fixed Costs

2. Depreciation

$$\frac{\text{Original Value - Salvage Value}}{\text{Useful Life}}$$

2.01 Machinery

	$300.00	cost/acre	_____
-	$0.00	salvage value	_____
÷	10	useful life	_____
=	**$30.00**	**$ /acre**	_____

2.02 Storage

	$74.80	cost/acre	_____
-	$7.48	salvage value	_____
÷	20	useful life	_____
=	**$3.37**	**$ /acre**	_____

3. Investment

$$\frac{\text{Original Value + Salvage Value}}{2} \times \text{Investment Rate}$$

3.01 Land

	$875.00	cost/acre	_____
x	4.0%	% investment rate	_____
=	**$35.00**	**$ /acre**	_____

3.02 Machinery

	$300.00	cost/acre	_____
+	$0.00	salvage value	_____
x	4.0%	% investment rate	_____
=	**$12.00**	**$ /acre**	_____

3.03 Storage

	$74.80	cost/acre	_____
+	$7.48	salvage value	_____
÷	2	average	_____
x	4.0%	% investment rate	_____
=	**$1.65**	**$ /acre**	_____

C. Labour

	$11.50	$/hour	_____
x	1.8	hours/acre	_____
=	**$20.70**	**$ /acre**	_____

White Pea (Navy) Bean Cost of Production Worksheet
Solid Seed Assumptions

1. This budget provides a guideline to determine the cost of production for a solid seeded white pea (navy) bean enterprise, based on 400 acres.

2. The investment in machinery and equipment was assumed to be $260 per acre. The machinery complement is similar to a grain enterprise with the addition of a flex header.

3. A yield of 1500 lbs per acre was assumed. This is slightly lower than the yield for row crop production to reflect the fact that much of the acreage lies outside the traditional bean production area.

4. A land value of $615 per acre was assumed.

A. Operating Costs				**Your Cost**
1.01 Seed & treatment				
		140,000	plants/acre	
	÷	2200	seeds/lb	
	x	1.15	emergence factor	
	=	73	seeding rate lbs/acre	
	x	$0.84	seed cost treated with DCT ($/lb)	
	=	**$61.32**	**$ /acre**	
1.02 Fertilizer				
Nitrogen		70	lbs/acre	
	x	$0.316	cost/lb	
	=	$22.12	$ /acre	
P_2O_5		30	lbs/acre	
	x	$0.280	cost/lb	
	=	$8.40	$ /acre	
K_2O		20	lbs/acre	
	x	$0.218	cost/lb	
	=	$4.36	$ /acre	

Sulfur		10	lbs/acre	
	x	$0.260	cost/lb	
	=	$2.60	$ /acre	
Zinc		0	lbs/acre	
	x	$1.50	cost/lb	
	=	$0.00	$ /acre	
Total	**=**	**$37.48**	**$ /acre**	

1.03 Herbicides

	$20.00	pre plant incorporated	
+	$12.00	post emergent	
+	$24.00	post emergent	
=	**$56.00**	**$ /acre**	

1.04 Insecticide/Fungicide

	1	number of applications	
x	$5.00	cost/application	
+	$30.00	fungicide	
=	**$35.00**	**$ /acre**	

1.05 Crop/Weed Dry Down

$14.00	**$ /acre**	

1.06 Fuel Costs

a) Field Fuel Costs

Operation	Times Over	Width feet	Speed mph	Fuel $/ac.	
Cultivate	1	48	5	1.01	
Spray	1	90	7	0.38	
Cultivate	2	48	5	2.02	
Plant	1	24	6	1.68	
Spray	2	90	7	0.77	
Swath	1	24	4.5	2.24	
Combine	1	24	4	2.52	
Total				**$10.62**	

b) Truck Fuel Costs from field to storage

	1,500	lbs/acre gross yield
=	300	total tons
÷	5	tons (truck capacity)
=	60	trips
x	5	miles per trip
=	300	total miles
÷	2.0	fuel consumption (miles/gal)
=	681.9	total litres (4.546 litres/gal)
÷	400	total acres
=	1.70	litres/acre
x	$0.68	fuel cost ($/litre)
Total =	**$1.16**	**trucking ($ /acre)**

c) Other fuel costs =	**$5.00**	**$ /acre**
Total =	**$16.78**	**fuel costs ($ /acre)**

1.07 Repair & Maintenance

	4.0%	percentage rate
x	$260	investment/acre
=	**$10.40**	**$ /acre**

1.08 Insurance

	$15.23	crop insurance
+	$4.90	hail insurance
=	**$20.13**	**$ /acre**

1.09 Miscellaneous

=	**$8.00**	**$ /acre**

1.10 Land Taxes

=	**$5.20**	**$ /acre**

1.11 Interest on Operating

	$264.31	Subtotal Operating
÷	2	average
x	6.5%	interest rate
=	**$8.59**	**$ /acre**

B. Fixed Costs

2. Depreciation

$$\frac{\text{Original Value - Salvage Value}}{\text{Useful Life}}$$

2.01 Machinery

	$260.00	cost/acre	
-	$0.00	salvage value	
÷	10	useful life	
=	**$26.00**	**$ /acre**	

2.02 Storage

	$74.80	cost/acre	
-	$7.48	salvage value	
÷	20	useful life	
=	**$3.37**	**$ /acre**	

3. Investment

$$\frac{\text{Original Value + Salvage Value}}{2} \times \text{Investment Rate}$$

3.01 Land

	$615.00	cost/acre	
x	4.0%	% investment rate	
=	**$24.60**	**$ /acre**	

3.02 Machinery

	$260.00	cost/acre	
+	$0.00	salvage value	
x	4.0%	% investment rate	
=	**$10.40**	**$ /acre**	

3.03 Storage

	$74.80	cost/acre	_____
+	$7.48	salvage value	_____
÷	2	average	_____
x	4.0%	% investment rate	_____
=	**$1.65**	**$ /acre**	_____

C. Labour

	$11.50	$/hour	_____
x	1.5	hours/acre	_____
=	**$17.25**	**$ /acre**	_____

For further information contact your Manitoba Agriculture, Food and Rural Initiatives office.

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